ABSTRACT OF
THE DISCLOSURE

A method, apparatus, and system for optically sorting and/or manipulating carbon nanotubes by creating an optical dipole trap with a focused light source (*e.g.*, a laser) are described in detail herein. In one representative embodiment, light from the light source may be directed onto a mixture of carbon nanotubes, the mixture including a target class of carbon nanotubes having dimensions (*e.g.*, length and diameter) corresponding to particular electronic properties suitable for an application. By identifying a resonant condition corresponding to the target class of carbon nanotubes, and tuning the light source substantially to the resonant condition, an optical dipole trap may be created to attract carbon nanotubes of the target class to allow manipulation and/or sorting of the target class of carbon nanotubes from the mixture, or rotation of the nanotubes via rotation of a plane of polarization of the light, in an embodiment.